The table gives values of a function f. Use a right Riemann sum with the 3 subintervals shown to approximate ∫ from 2 to 8 of f(x) dx.

x	2	4	6	8
f(x)	10	13	9	13

The function f is decreasing on [1, 9]. Will a right Riemann sum with n = 8 overestimate or underestimate ∫ from 1 to 9 of f(x) dx? (A) overestimate (B) underestimate

Approximate the area under f(x) = 4x + 5 from x = 1 to x = 5 using a midpoint Riemann sum with n = 2 equal subintervals.

Approximate ∫ from 0 to 5 of (x^2 - 2x + 3) dx using the trapezoidal rule with n = 5 equal subintervals.

The table gives values of a function f. Use a left Riemann sum with the 6 subintervals shown to approximate ∫ from 1 to 19 of f(x) dx.

x	1	4	7	10	13	16	19
f(x)	10	10	11	13	12	17	15

The table gives values of a function f. Use the trapezoidal rule with the 5 subintervals shown to approximate ∫ from 2 to 7 of f(x) dx.

x	2	3	4	5	6	7
f(x)	8	13	10	6	9	5

The function f is increasing on [-2, 3]. Will a left Riemann sum with n = 7 overestimate or underestimate ∫ from -2 to 3 of f(x) dx? (A) overestimate (B) underestimate

Approximate the area under f(x) = -x^2 + 25 from x = 1 to x = 5 using a right Riemann sum with n = 2 equal subintervals.

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 2

ANSWER

B

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 1

ANSWER

70

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 4

ANSWER

32.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 3

ANSWER

68

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 6

ANSWER

44.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 5

ANSWER

219

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 8

ANSWER

32

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 7

ANSWER

B

The table gives values of a function f. Use a midpoint Riemann sum with 3 subintervals of equal width to approximate ∫ from 0 to 30 of f(x) dx.

x	0	5	10	15	20	25	30
f(x)	3	0	0	4	5	8	9

Approximate the area under $f(x) = x^2 - 2x + 5$ from $x = 1$ to $x = 7$ using a midpoint Riemann sum with $n = 3$ equal subintervals.

Approximate the area under $f(x) = -x^2 + 36$ from $x = 0$ to $x = 6$ using a midpoint Riemann sum with $n = 3$ equal subintervals.

The table gives values of a function f. Use a right Riemann sum with the 3 subintervals shown to approximate ∫ from 2 to 17 of f(x) dx.

x	2	7	12	17
f(x)	2	0	5	3

The table gives values of a function f. Use the trapezoidal rule with the 3 subintervals shown to approximate ∫ from 0 to 9 of f(x) dx.

x	0	3	6	9
f(x)	2	8	10	11

The function f is decreasing on [-2, 5]. Will a left Riemann sum with $n = 6$ overestimate or underestimate ∫ from -2 to 5 of f(x) dx?

(A) overestimate (B) underestimate

Approximate the area under $f(x) = -x^2 + 16$ from $x = 0$ to $x = 4$ using a right Riemann sum with $n = 2$ equal subintervals.

The table gives values of a function f. Use a midpoint Riemann sum with 2 subintervals of equal width to approximate ∫ from 2 to 10 of f(x) dx.

x	2	4	6	8	10
f(x)	4	9	9	6	9

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 10

ANSWER

94

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 9

ANSWER

120

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 12

ANSWER

40

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 11

ANSWER

146

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 14

ANSWER

A

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 13

ANSWER

73.5

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 16

ANSWER

60

Approximating Integrals: Riemann Sums & the Trapezoidal Rule · 15

ANSWER

24

The table gives values of a function f. Use a left Riemann sum with the 3 subintervals shown to approximate ∫ from 0 to 15 of f(x) dx.

x	0	5	10	15
f(x)	8	8	11	10

The table gives values of a function f. Use a right Riemann sum with the 4 subintervals shown to approximate ∫ from 0 to 8 of f(x) dx.

x	0	2	4	6	8
f(x)	3	1	2	8	7

The function f is increasing on [-1, 7]. Will a right Riemann sum with n = 8 overestimate or underestimate ∫ from -1 to 7 of f(x) dx? (A) overestimate (B) underestimate

Approximate the area under $f(x) = x^2 + 4$ from $x = 1$ to $x = 7$ using a midpoint Riemann sum with $n = 3$ equal subintervals.

Approximate ∫ from 1 to 6 of $(x^2 - 2x + 4)\,dx$ using the trapezoidal rule with $n = 5$ equal subintervals.

The table gives values of a function f. Use a right Riemann sum with the 4 subintervals shown to approximate ∫ from 2 to 14 of f(x) dx.

x	2	5	8	11	14
f(x)	1	0	7	10	16

The table gives values of a function f. Use the trapezoidal rule with the 5 subintervals shown to approximate ∫ from 0 to 15 of f(x) dx.

x	0	3	6	9	12	15
f(x)	2	2	0	4	6	2

Let $f(x) = \sin x$ on $[0, \pi/2]$. Will a right Riemann sum with $n = 8$ overestimate or underestimate ∫ from 0 to π/2 of f(x) dx? (A) overestimate (B) underestimate

ANSWER

36

ANSWER

135

ANSWER

136

ANSWER

A

ANSWER

99

ANSWER

57.5

ANSWER

A

ANSWER

42